

**Final Performance Report
for Transfer of NASA Grant
NNG04-GL18G**

Date: September 26, 2005
PI: Dr. Paul Barrett
Space Science Telescope Institute
pebarrett@gmail.com
NASA Grant No: NNG04-GL18G
STScI Project No: J1106
Title: *Time Resolved Spectroscopy of Eclipsing Polars*
Period Covered by Report: 08/15/04 - 08/02/05
STScI Sponsored Programs: Paula Sessa
Administrator: Lead Sponsored Programs/Contracts Administrator
Contracts and Sponsored Programs
Space Telescope Science Institute
3700 San Martin Drive
Baltimore, MD 21218
Phone: (410) 338-4816
Email: sessa@stsci.edu

Submitted to: Theresa Bryant
Grants Officer
NASA/Goddard Space Flight Center
Code 210G
Greenbelt Rd.
Greenbelt, MD 20755
(301) 286-3048

cc: George Sonneborn, NASA
Deborah White, ONR Grants Officer
NASA CASI
Paul Barrett, PI
File

Final Performance Report for NASA Grant NNG04-GL18G:

No changes have been made since the last annual progress report was submitted in conjunction with a unilateral NCX.

Dr. Barrett was affected by an STScI Reduction in Force (RIF). He is now employed by the Johns Hopkins University and plans to continue his research there.

No expenses have been charged to this grant, however the FUSE data for the eclipsing polar V1432 Aql has been received and processed using CALFUSE v3.0.6. The resulting summed spectrum has been used for a preliminary analysis of the interstellar absorption towards V1432 Aql. We find a hydrogen column density of less than $1.5 \times 10^{21} \text{ cm}^{-2}$. We have used this result in the paper "X-Ray Emission and Optical Polarization of V1432 Aquilae: An Asynchronous Polar" (1) to fix the hydrogen column density in the soft ($<0.5 \text{ keV}$) X-ray band when analyzing the XMM-Newton spectra of this polar. This has enabled us to find an accurate temperature for the blackbody component of $88 \pm 2 \text{ eV}$, which is significantly higher than that of other polars (20 - 40 eV).

We hope to complete our analysis of the phase-resolved emission line spectra of V1432 Aql and to prepare the results for publication in a refereed journal. We hope to begin work on this star within the next few months.

(1) Rana, V.R., Singh, K.P., Barrett, P.E. & Buckley, D.A.H. 2005, "X-Ray Emission and Optical Polarization of V1432 Aquilae: An Asynchronous Polar", ApJ, in press (2005 May 20).

Space Telescope Science Institute
Final Property/Inventory Report for Contract – Grant Number
NNG04GL18G

STScI Project No.: J1106

Principal Investigator: Dr. Paul Barrett

As of 08/02/05

For dollar values greater than 5,000.00 and less than 100,000,000.00

Negative Report

NASA GRANTEE NEW TECHNOLOGY SUMMARY REPORT

NASA requires each research grantee, research contractor, and research subcontractor to report new technology to the NASA Commercial Technology Office. For that purpose, the following reports and corresponding schedules are provided:

<u>Title of Report</u>	<u>Form Number</u>	<u>Timetable</u>
New Technology Disclosure	NASA Form 1679	The grantee discloses <i>each</i> discovery of new technology individually, at the time of its discovery
NASA Grantee New Technology Summary Report (checkmarked "Interim")	NASA C-3043	For multi-year grants, the grantee summarizes the previous year's disclosures on an annual basis. The first Interim New Technology Summary Report is due exactly 12 months from the effective date of the grant. Future reports are due annually, thereafter.
NASA Grantee New Technology Summary Report (checkmarked "Final")	NASA C-3043	The grantee submits a cumulative summary of all disclosed technologies. The Final New Technology Summary Report is submitted immediately following the grant's technical period of performance.

Grantee Name: Space Telescope Science Institute

Grantee Address: 3700 San Martin Drive, Baltimore, MD 21218

Telephone No.: 410-338-4580

NASA Grant No: NNG04-GL18G Grant Completion Date: 08/02/05

NASA GM: Dr. George Sonneborn Report Submitted by: Cheryl Pompa

New technology should be reported whether or not it is or may be patentable.

Large business contractors and subcontractors must disclose all reportable items to NASA. Reportable items as used in NASA contracts (or subcontracts) with large businesses means any invention, discovery, improvement, or innovation, whether or not patentable, conceived or first actually reduced to practice in the performance of work under a NASA contract (or subcontract). Reportable items include, but are not limited to, new processes, machines, manufactures, and compositions of matter, and improvements to, or new applications of, existing processes, machines, manufactures, and compositions of matter. Reportable items also include new computer programs, and improvements to, or new applications of, existing computer programs, whether or not copyrightable.

Small business, nonprofit organization, and college and university contractors and subcontractors must disclose all subject inventions to NASA. Subject inventions as used in NASA contracts (or subcontracts) with other than large businesses means any invention or discovery which is or may be patentable and is conceived or first actually reduced to practice in the performance of work under a NASA contract (or subcontract). Subject inventions include any new process, machine, manufacture, or composition of matter, including software, and improvements to, or new applications of, existing processes, machines, manufactures, and compositions of matter, including software.

Subject to approval by contractors (or subcontractors) who retain or obtain title to subject inventions or reportable items, all such reported items are evaluated for publication in NASA Tech Briefs. If an item is published in NASA Tech Briefs, the innovator receives a monetary award from NASA.

NASA GRANTEE NEW TECHNOLOGY SUMMARY REPORT

General Information

1. Type of Report: ☐ Interim ☒ Final Reporting Period: 06/01/04 - 08/02/05
2. Size of Business: ☐ Large ☐ Small ☐ College/ University ☒ Nonprofit Organization
3. Have any reportable items or subject inventions resulted from work performed under this contract during this reporting period? ☐ Yes ☒ No
4. Are New Technology Items being disclosed (NF 1679 or equivalent) with this Summary Report?
☐ Yes ☒ No

• New Technology Items

Please provide the title(s) of all new and previously disclosed new technology items conceived or first reduced to practice under this grant. Use a separate piece of paper if additional space is required.

<u>Title</u>	<u>Internal Docket</u> <u>Number</u>	<u>Patentable</u> <u>Item</u>	<u>Patent Appl.</u> <u>Filed</u>	<u>Patent Appl.</u> <u>Not Filed</u>
• NONE		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
•		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
•		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
•		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Grant Subcontractors

Please complete the following section listing all research subcontractors participating to date. Include each subcontractor's name, address, contact person, telephone number, and the subcontract award date. Use a separate piece of paper if additional space is required.

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Date of Award:	Date of Award:
<hr/>	<hr/>
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Date of Award:	Date of Award:

• Certification

I certify that active and effective procedures ensuring prompt identification and timely disclosures of reportable new technology items have been followed. Furthermore, I certify that all new technology items required to be disclosed and conceived during the period identified on this form have been disclosed to NASA.

Cheryl Pompa

Sponsored Programs Administrator I

Name and Title of Authorized Official


Signature and Date

FEDERAL CASH TRANSACTIONS REPORT

(See instructions on the back. If report is for more than one grant or assistance agreement, attach completed Standard Form 272A.)

OMB APPROVAL NO. 0348-0003

1. Federal sponsoring agency and organizational element to which this report is submitted

NASA Goddard Space Flight Center
Accounting Branch Code 151-2
Greenbelt, MD 20771

2. RECIPIENT ORGANIZATION

Name: Space Telescope Science Institute

Number and Street: 3700 San Martin Drive

City, State and ZIP Code: Baltimore, MD 21218

4. Federal grant or other identification number

NNG04GL18G

5. Recipient's account number or identifying number

J1106

6. Letter of credit number

80005122

7. Last payment voucher number

n/a

Give total number for this period

8. Payment Vouchers credited to your account 0

9. Treasury checks received (whether or not deposited) 0

3. FEDERAL EMPLOYER IDENTIFICATION NO.

86-0138043

10. PERIOD COVERED BY THIS REPORT

FROM (month, day, year)

6/1/2004

TO (month, day, year)

8/2/2005

11. STATUS OF

FEDERAL

CASH

(See specific instructions on the back)

a. Cash on hand beginning of reporting period

\$ 0.00

b. Letter of credit withdrawals

0.00

c. Treasury check payments

0.00

d. Total receipts (Sum of lines b and c)

0.00

e. Total cash available (Sum of lines a and d)

- 0.00

f. Gross disbursements

0.00

g. Federal share of program income

0.00

h. Net disbursements (Line f minus line g)

0.00

i. Adjustments of prior periods

0.00

j. Cash on hand end of period

\$

12. THE AMOUNT SHOWN ON LINE 11j, ABOVE, REPRESENTS CASH REQUIREMENTS FOR THE ENSUING

Days

13. OTHER INFORMATION

a. Interest income

\$

b. Advances to subgrantees or subcontractors

\$

14. REMARKS (Attach additional sheets of plain paper, if more space is required)

Final Financial J1106
Contract Value: \$19,200.00

15.

CERTIFICATION

I certify to the best of my knowledge and belief that this report is true in all respects and that all disbursements have been made for the purpose and conditions of the grant or agreement.

AUTHORIZED

CERTIFYING

OFFICIAL

SIGNATURE

TYPED OR PRINTED NAME AND TITLE

Amy Garrett Power
Senior Budgets Accountant

DATE REPORT SUBMITTED

09/07/2005

TELEPHONE (Area Code, Number, Extension)

410-338-4801

THIS SPACE FOR AGENCY USE